

What Is Claimed:

1. An ambient condition detector comprising:
at least one of a smoke sensor or a thermal sensor;
a sensor of incident radiant energy responsive to sources of radiant energy exclusive of the smoke sensor or the thermal sensor; and
control circuitry coupled to the sensors and responsive to selected transient changes in incident radiant energy to shorten the time to respond to a predetermined ambient condition.
2. A detector as in claim 1 which includes additional circuitry to shorten the response time by adjusting at least one of a sample rate or a sensitivity parameter associated with the smoke sensor in response to changes in incident radiant energy.
3. A detector as in claim 2 where the additional circuitry to shorten the response time is responsive to increasing radiant energy to reduce the sensitivity parameter and to substantially step changes reducing radiant energy to increase the sensitivity parameter.
4. A detector as in claim 1 which includes additional circuitry, responsive to incident radiant energy to determine the presence of a flame.
5. A detector as in claim 4 which includes executable instructions to process signals from the sensor of incident radiant energy to establish the presence of a flame.
6. A detector as in claim 4 where the smoke sensor is displaced from the sensor of incident radiant energy.
7. A detector as in claim 6 where the control circuitry is, at least in part, coupled to at least one of the sensors by a bi-directional communications medium.
8. A detector as in claim 6 with the control circuitry, at least in part, displaced from the sensors and in communication therewith via a bi-directional communications medium.

9. A detector as in claim 1 where the smoke sensor comprises a photo-electric type smoke sensor, and responsive to radiant energy indicative of flame, the control circuitry shortens response time of the smoke sensor by at least one of increasing a sample rate of the smoke sensor, or increasing a sensitivity parameter of the smoke sensor.
10. A detector as in claim 1 which includes additional circuitry, responsive to incident radiant energy indicative of a flame, to increase a sensitivity parameter of the thermal sensor.
11. A detector as in claim 10 which includes executable instructions for processing signals from the sensor of radiant energy to establish a flaming fire as a likely source of the radiant energy.
12. A detector as in claim 1 where the thermal sensor and the radiant energy sensor are displaced from one another with the control circuitry, at least in part, in bidirectional communication therewith via one of a wireless or a wired medium.
13. A detector as in claim 10 where the smoke sensor, the thermal sensor and the radiant energy sensor are all displaced from one another as well as a portion of the control circuitry with the portion of the control circuitry in communication with the sensors via one of a wireless or a wired medium.
14. A detector as in claim 11 where the executable instructions compare signals from the radiant energy sensor to a pre-stored fire profile.
15. A detector as in claim 11 where the executable instructions compare signals from the radiant energy sensor to a plurality of pre-stored fire profiles.
16. A detector as in claim 11 which includes additional instructions correlating signals from the light sensor with signals from the thermal sensor in establishing the presence of a fire condition.
17. A detector as in claim 11 which includes additional executable instructions, responsive to an established flaming fire, for altering a response parameter of the thermal sensor.

18. A detector as in claim 17 where the additional executable instructions progressively enhance signals from the thermal sensor prior to processing same to establish the presence of a thermally indicated fire condition.
19. A detector as in claim 1 which includes executable instructions, responsive to a step change in incident radiant energy, to adjust a parameter of the other sensor.
20. A detector as in claim 19 with the executable instructions responsive to step decreases in incident radiant energy.
21. A detector for sensing an environmental condition comprising:
a light sensor which generates a first signal indicative of incident ambient light intensity;
at least a second sensor which generates a second signal indicative of a different environmental condition;
a processor that receives the first and the second signals, the processor using the first signal to alter a delay time associated with the second sensor, and the processor providing an indication of the presence of the environmental condition.
22. A detector as in claim 21 where the processor alters the delay time in response to the first signal indicating the presence of a fire condition.
23. A detector as in claim 21 where the environmental condition is at least one of a fire or a smoke condition.
24. A detector as in claim 21 where the processor alters the delay time in response to the first signal indicating the presence of a predetermined ambient light intensity.
25. A detector as in claim 21 where the first signal is indicative of a pattern of varying incident light.
26. A detector as in claim 21 which includes an optical filter and where the first signal is indicative of incident ambient light that has passed through the filter.

27. A detector as in claim 21 where the second sensor is at least one of a fire, smoke, gas, thermal, or motion sensor.
28. A detector as in claim 21 where the delay time is present only in response to a predetermined level of the second signal.
29. A detector for sensing a fire condition comprising:
a light sensor which generates a first signal indicative of ambient light intensity;
at least a fire sensor which generates a second signal indicative of a fire condition; and
a processor that receives the first and second signals, the processor responds to the first signal to increase a sensitivity parameter associated with the second signal such that the detector is more sensitive to the fire condition when the first signal is indicative of light produced by a fire condition.
30. A detector as in claim 29 where the processor responds to a fire condition, indicated by a pattern of light intensity variations, sensed by the processor over time.
31. A detector as in claim 29 where the processor executes instructions which determine if the first signal has deviated from a time based average thereof in establishing the presence of a fire condition.
32. A detector as in claim 29 which includes a filter where the first signal comprises a filtered representation of the incident light.
33. A process comprising:
sensing incident radiant energy from a region being monitored;
sensing a different, potentially hazardous condition;
first determining if sensed radiant energy is indicative of the presence of fire, and, responsive thereto, then determining on an accelerated basis, if the sensed different condition is indicative of fire.
34. A process as in claim 33 where the first determining includes evaluating the sensed radiant energy relative to at least one fire profile.

35. A process as in claim 33 where the first determining includes evaluating the sensed radiant energy relative to a plurality of fire profiles.
36. A process as in claim 33 where the first determining includes evaluating if the sensed radiant energy has abruptly decreased, and, responsive thereto, the then determining includes, increasing at least one of a sensitivity parameter, a sample rate associated with sensing the different condition, or, a signal magnitude associated with the different condition.
37. A process as in claim 33 where sensing the different condition comprises sensing at least one of heat or smoke.
38. A process as in claim 37 which includes process at least one of heat or smoke indicia in response to a radiant energy indicating fire condition, so as to shorten a response interval in then determining if the heat or smoke indicia are indicative of fire.
39. A process as in claim 33 which includes sensing radiant energy and sensing the different condition at spaced apart locations in the region.
40. A process as in claim 39 which includes processing indicia, associated with sensing radiant energy and the different condition at least in part, at a location in the region displaced from at least one of the sensings.
41. A process as in claim 33 which includes increasing an amplitude magnitude of a signal indicative of the sensed different condition in response to the sensed radiant energy being indicative of fire.
42. A method of monitoring a region comprising:
sensing a radiant energy parameter in a region;
sensing a hazard parameter indicative of by-products of combustion in the region;
sensing a thermal parameter in the region;
evaluating the radiant energy parameter for the presence of flame, and responsive thereto, evaluating the thermal parameter for an indication of elevated heat in the region;

altering a sensitivity parameter associated with at least one of the hazard parameter or the thermal parameter in response to the results of evaluating the parameters; and

determining if the by-products of combustion are indicative of the presence of a hazardous condition in the region.

43. A method as in claim 42 which includes evaluating if the radiant energy parameter is indicative of a relatively low level of ambient light in the region, and responsive thereto, increasing a sensitivity parameter indicative of a smoldering fire condition.

44. A method as in claim 42 which includes evaluating if the radiant energy parameter is indicative of a relatively low level of ambient light in the region, and responsive thereto, and also responsive to the radiant energy parameter indicating the presence of flame, increasing a sensitivity parameter indicative of the presence of flame.

45. A method as in claim 42 which includes producing an indicium of a selected hazardous condition in response to sensing at least one of the hazard parameter or the thermal parameter.

46. A method as in claim 45 which includes altering the indicium in response to sensed radiant energy.

47. A method as in claim 46 which includes increasing a magnitude of the indicium in response to sensed radiant energy.

48. A method as in claim 46 which includes producing the indicium, at least in part, in response to the sensed hazard parameter.

49. A method as in claim 46 which includes producing the indicium, at least in part, in response to the sensed thermal parameter.

50. A method as in claim 48 which includes increasing a magnitude of the indicium in response to sensing a flaming condition.

51. A method as in claim 49 which includes coupling at least some of the parameters to a displaced location for processing.

52. A method as in claim 51 which includes sensing at least the radiant energy and the hazard parameter at spaced apart locations in the region.